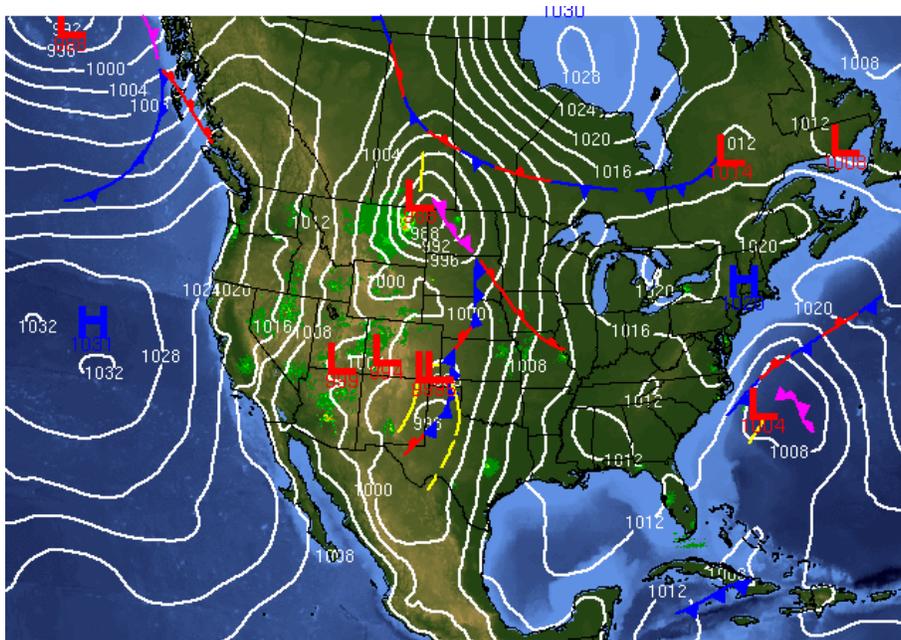




## Meteorological Event Review of the April 9-10, 2005 Winter Storm Affecting Portions of Northeastern Montana

### 1. Overview

A springtime storm moved into the region from the Pacific Northwest. An intense low pressure system formed over eastern Montana, producing heavy rain, sleet and heavy snow across much of eastern Montana. Elevation played a significant role in whether an area saw rain or snow during the event. After the precipitation decreased across the region, a secondary system moved through the area and had winds from the northwest with gusts up to 85 mph measured.



21Z 09 Apr 2005

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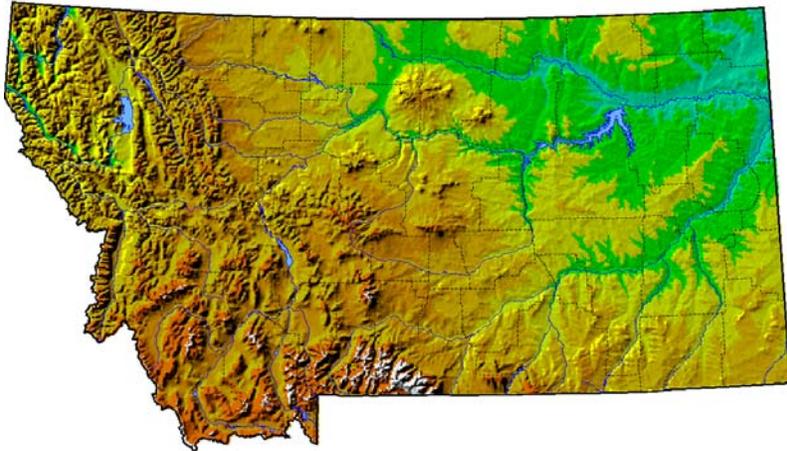
### 2. Conditions prior to the event

The region has just come out of a very warm and dry winter. February was the driest month for the entire state of Montana in the record books. March had several events that helped bring the precipitation for the month to above normal in the central portion of the state (171% in the Blaine and Phillips County area, 144% in the Fergus and Petroleum County area, and only 88% of normal in the remaining northeast Montana Counties). Much of the area has been in a D2 (Severe) or D3 (Extreme) drought category throughout the winter. Soils were extremely dry and porous.



### 3. Event Summary

During the day on Friday, April 8<sup>th</sup>, the low pressure system moved into central Montana, and intensified during the next 30 hours. Precipitation, starting out as rain, began to fall during the day on Saturday. At locations above 4000 feet (the Little Rocky Mountains), sleet was observed during the day. As things cooled even more on Saturday night, rain changed to sleet, and then into accumulating snowfall at elevations of 2800 feet and above (Big Sheep Mountains, higher portions of Petroleum and Garfield Counties). Using the map below, the areas in eastern Blaine, Phillips, Petroleum, Garfield, McCone and Prairie Counties that are shaded in yellow and light orange are above the 2800 foot level.



The winds switched from the southeast to the northwest late Friday afternoon into early Saturday morning. The speeds on the east side of the Judith Mountains and the Little Rocky Mountains increased into the range of 23 to 40 mph sustained, with gusts up to 85 mph (measured at the BLM Zortman weather observation site). As you go east, the winds were still in the 20 to 40 mph sustained range with gusts of 50 to 60 mph. The winds began on Saturday morning around 3 am, and continued with little abatement for up to 36 hours.

The following reports were received from official automated observation sites, weather spotters and NWS Cooperative Observers.

Observation Location	Precip.	Snow/Ice	Wind	Other
4 ENE Mosby SW Garfield Co.	1.45"	Trace	No wind measurements, but they were strong.	
3 N Brusett NW Garfield Co.	3.47"	3" (10 <sup>th</sup> )		Power poles down locally.
4 S Hinsdale Far W Valley Co.	1.42"	7" (10 <sup>th</sup> )	Estimated 50 mph winds, perhaps higher gusts	Higher elevation site. Calves perished.
Harb (24 ESE Malta) Far E Phillips Co.	1.20"	Unknown		



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3 WSW Brockway Far S McCone Co.	1.10"	6" (10 <sup>th</sup> )	Estimated 50-60 mph winds, but snow was so wet and heavy, it wouldn't blow into drifts.	
7 E Malta Phillips Co.	1.10"	See "Other"		Rain mixed with wet snow, little actual accumulation
10 SW Richey W Dawson Co.	0.25"	None		Note: Site is on the east side of the Big Sheep range (much worse west)
3 SSE Content SW Phillips Co.	1.10"	2-3"	Estimated 50-60 mph wind.	Snow very wet, melting as it fell.
8 ESE Winnett Petroleum Co.	0.60"	Trace	Peak wind gusts estimated to be in the range of 50-55 mph.	
43 ENE Jordan NE Garfield Co.	1.00"	Freezing rain ice /crusted snow of 0.5"	In all her years at this site, the most screaming winds she has seen. Estimated 45+ mph steady, gusts up to 70-80 mph.	Lost 4 calves.
35 S Malta S Phillips Co.	1.12"	Sleet and snow, just enough to turn ground white.	Measured average wind of 30 mph, gusts well over 40 mph.	Lost 9 calves; bigger losses by neighbors.
Malta Radio Station C Phillips Co.	1.02"			
Dry Blood Creek BLM RAWS site N Petroleum Co	.51"		Peak Wind 55 mph at 145 and 245 pm on April 9th	Peak wind measured within previous hour at some time.
Fort Peck Dam SE Valley/NW McCone Co.			Peak Wind 52 mph at 550 pm on April 9th.	Peak wind measured within previous hour at some time.
NWS Glasgow C Valley Co.	.63"		Peak Wind 46 mph	Various gusts to that point from 540 pm to 850 pm on the 9 <sup>th</sup> .
Jordan C Garfield Co.	.80"		Peak Wind 52 mph at 445 pm on April 9th	
King Coulee BLM RAWS site SW Valley Co.	.23"		Peak Wind 72 mph 750 pm April 9th	Peak wind measured within previous hour at some time.
Winnett C. Petroleum Co.			Peak Wind 53 mph at 145 pm and 245 pm April 9th	Peak wind measured within previous hour at some time.
Bluff Creek BLM RAWS site NW Valley Co.	.37"		Peak Wind 62 mph at 650 pm April 9th	Peak wind measured within previous hour at some time.
Cowcreek DOT site C McCone Co.			Peak Wind 52 mph 700 pm April 9th	Peak wind measured within previous hour at some time.



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Chain Buttes BLM RAWS site NE Petroleum	2.08"		Wind sensor not reporting correctly	
Zortman/Malta South DOT site C/SW Phillips Co.			Peak Wind 59 mph between 11 pm and midnight April 9 <sup>th</sup>	Peak wind measured within previous hour at some time.
Lindsay Divide DOT site W Dawson Co.			Peak Wind 53 mph at 1110 pm on April 9 <sup>th</sup>	Top of the Big Sheep Mtns.
Malta Airport C Phillips Co.			Peak Wind 48 mph at 1145 am on April 9 <sup>th</sup>	Agrimet site had a gust to 58 mph at 630 pm
Manning Corral BLM RAWS site SW Phillips Co.	1.05"		Peak Wind 45 mph at 245 pm and 345 pm April 9th	Peak wind measured within previous hour at some time.
South Sawmill BLM RAWS site	1.47"		Peak Wind 49 mph at 625 pm April 9th	Peak wind measured within previous hour at some time.
Whitewater School N Phillips Co.			Peak Wind 45 mph at 805 pm April 9 <sup>th</sup>	
Zortman BLM RAWS site W Phillips Co.	.71"		Peak Wind 85 mph at 840 pm on April 9th	Precip sensor has underestimated precip due to blowing rain/snow
Curry Coulee BLM RAWS site NW Garfield Co.	2.44"		Peak Wind 45 mph at 210 pm April 9 <sup>th</sup>	
3NW Zortman weather spotter W Phillips Co.		18"		At the Zortman Mine
27NW Terry weather spotter NW Prairie Co.		Snow drifts to two feet, blizzard conditions		Sheriff Deputy went to check area and got stuck in the snow. On top of Big Sheep Mtns.
4S Hinsdale weather spotter W Valley Co.	1.28"	5"		
Zortman weather spotter W Phillips Co.	1.7"	6+'' snow		
Circle weather spotter	.73"	1'' snow		Snow melted as it fell. Many 1'' tree branches broken off, and power lines down west of town.
Chinook	1.19"			

4. Post Event Conditions

Two rainfall events occurred after the winter storm impacted the area. Both events added more measurable precipitation to the area (anywhere from a tenth of an inch up to 1 ¾"). The soils are fairly moist at this time across eastern Montana. The drought monitor has also reflected an improvement in conditions with the region now in a D1 (moderate) to D2 (severe) drought.